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THE ASSOCIATION BETWEEN STUDY FACULTY, STUDENTS HABITS AND LIFESTYLE FACTORS, PARTICULARLY PHYSICAL ACTIVITY IN A POPULATION OF STUDENTS IN A BIG CITY

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Abstract

Background: The aim of the study was to assess the association between study faculty, students habits and lifestyle factors, particularly physical activity in a population of students in a big city.

Methods: The study evaluated 1131 students, who filled out questionnaire, an average aged of 21,79 ± 2,26 years, 50,6% men. Students represented 6 different universities in Krakow: 38% of respondents were students of the Jagiellonian University (UJ), including 20,8% students of the Faculty of Medicine (UJ CM). 24,7% subjects were students of the University of Science and Technology (AGH), 12,8% of the Academy of Physical Education (AWF), 5,5% of the Academy of Fine Arts (ASP), 8,7% University of Agriculture (UR) and 10,3% of the University of Economics (UEK).

Results: Physical activity was more frequent among students of the Academy of Physical Education (AWF): almost 80%. 68,4% of students claimed, that they follow the rules of health lifestyle. 29,9% of them perform various kind of sport minimum 3 times a week but 18,3% were no physical active even once a week. There was statistically significant ($p<0.001$) dependence between subjective declaration of students that they obey the rules of a healthy lifestyle. Analysis demonstrates significant positive correlation between physical activity and consumption of vegetables and fruits. Alcohol drink 43,2% of students in small quantities, no more than once a week. 28,4% admit that sometimes loses control over drinking. Students who more often smoke cigarettes significantly more often drink coffee, alcohol and use drugs.

Conclusions: Educational program of universities and academic environment influence on young adults habits. Physical activity is connected with occurrence other healthy habits.

Keywords: *students habits, young adults lifestyle, physical activity, risk factors of atherosclerosis in Polish students*

Introduction

The benefits of healthy lifestyle, as proven so far, are extreme great. A balanced diet rich in fresh fruits, vegetables and see food, with high amounts and proper proportion of omega 3 and 6 acids, elimination of risk factors of atherosclerosis such as smoking, overweight or obesity, alcohol use and physical inactivity plays important role in maintenance of the health [1]. Atherosclerosis leads to development of coronary artery disease, occurrence of stroke and any other diseases that lead to death. Atherosclerosis is responsible for high mortality and morbidity. Physical activity influences positively health and fitness and reduces risk of several diseases, particularly connected with the atherosclerosis, promotes well-being and mental health and reduces stress [2-7]. Lack of physical activity is related to social problems and poor development of health [2, 8,9]. As proven by Koivusilta L., Stalsberg R., Currie C. and other scientists practicing physical activity by young people and their educational achievements are influenced by their living conditions [2,10-12]. So far it's generally known, that regular physical activity with healthy habits reduce morbidity and mortality of cardiovascular diseases and prolong life expectancy in good condition. Many national scientific societies, e.g. the American Heart Association (AHA) and Canadian Cardiovascular Society emphasize improvement of diet and physical activity as one of their primary aims [13,14]. People develop healthy habits in youth. The aim of the study was to investigate the association between Polish students healthy habits and their study faculty. The second aim was to assess impact of sport on other habits and lifestyle.

Methods

The association between study faculty, students habits and lifestyle factors, particularly physical activity, was investigated in a population of students in big city (in Krakow). The study evaluated 1131 Polish students, who filled out questionnaire, aged 18 - 35 years, an average of 21,79 ± 2,26 years, 559 (49,4%) women and 572 (50,6%) men. Students represented 6 different universities in Krakow: 430 (38%) of respondents were students of the Jagiellonian University (UJ): Faculty of Medicine, Health Sciences, Law and Computer Science. Due to the kind of study,

students of the Jagiellonian University Medical College (Faculty of Medicine and Faculty of Health Sciences) were analyzed separately. Accordingly there were 195 (17,2%) Jagiellonian University students and 235 (20,8%) students of the Medical College (UJ CM). 279 (24,7%) subjects were students of the AGH University of Science and Technology (AGH), 145 (12,8%) of the Academy of Physical Education (AWF), 62 (5,5%) of the Academy of Fine Arts (ASP), 98 (8,7%) University of Agriculture (UR) and 117 (10,3%) of the University of Economics (UEK). People, who study in Krakow, come from various parts of Poland as well as from abroad. The data were obtained during October 2014 - April 2015. In order to assess students habits and lifestyle, we used method of diagnostic survey using the survey technique. The questionnaire was prepared by authors of the study. BMI was calculated from anthropometric measurements. The Ethics Committee of the Jagiellonian University accepted the study protocol (nr 122.6120.56.2015). The program R 2.15.1 was used in statistical analysis and $p<0,05$ was considered significant.

Results

Our analysis shows that physical activity was more frequent among students of the Academy of Physical Education (AWF): almost 80% of them regularly undertake physical activity (at least 3 times a week), for comparison at the Medical College (UJ CM) such activity takes only about 20% of the students ($p<0,0001$). It's connected with the educational program of the faculty. The frequency of physical activity of students of different universities are presented in Table 1.

The number of students who claimed following the rules of healthy lifestyle is: 757 (68,4%). Healthy lifestyle means: no smoking, systematic physical activity, fresh vegetables and fruits everyday, no much sweet and coffee. Only 337 (29,9%) of them (25,7% female and 34,0 % male) perform various kind of sports minimum 3 times a week but 206 (18,3%): 120 (21,5 %) female and 86 (15,1%) male were no physical active even once a week. There was statistically significant ($p<0.0001$) dependence between subjective declaration of students that they obey the rules of a healthy lifestyle, and the regularity of their physical activity (Fig. 1).

Analysis of diet habit shows that only 8% (n=90) students eat sea fish at least 2 times a week. Most fish eat the UJ (14% at least twice a week) and CM UJ (10,2% at least twice a week) students. We can not say that students who are more physically active more likely consume sea fish despite the statistically significant ($p=0,0007$) positive Spearman rank correlation because this correlation is too low ($r_{sp=}0,1$). The majority of respondents (69,8%; n=789) eat fresh

Table 1. *The frequency of physical activity among students of different universities*

		Min. 3 times a week		2 times a week		1 time a week		None	
		n	%	n	%	N	%	n	%
UJ CM	Total	48	20,4	49	20,9	55	23,4	83	35,3
	Female	33	18	34	18,1	44	24	72	39
	Male	15	28,8	15	28,8	11	21,2	11	21,2
UJ	Total	46	23,6	54	27,7	63	32,3	32	16,4
	Female	12	18,7	22	34,4	20	31,2	10	15,6
	Male	34	25,9	32	24,4	43	32,8	22	16,8
AGH	Total	59	21,2	54	19,4	121	43,5	44	15,8
	Female	4	10,8	9	24,3	16	43,2	8	21,6
	Male	55	22,8	45	18,7	105	43,6	36	14,9
AWF	Total	111	76,6	26	17,9	7	4,8	1	0,7
	Female	41	63,1	17	26,1	6	9,2	1	1,5
	Male	70	87,5	9	11,2	1	1,2	0	0
ASP	Total	10	16,1	10	16,1	22	35,5	20	32,3
	Female	6	14,6	8	19,5	14	34,1	13	31,7
	Male	4	19	2	9,5	8	38,1	7	33,3
UR	Total	32	33,3	17	17,7	32	33,3	15	15,6
	Female	27	33,7	13	16,2	30	37,5	10	12,5
	Male	5	31,2	4	25	2	12,5	5	31,2
UEK	Total	31	26,7	30	25,9	44	37,9	11	9,5
	Female	20	23	23	26,4	38	43,7	6	6,9
	Male	11	37,9	7	24,1	6	20,7	5	17,2

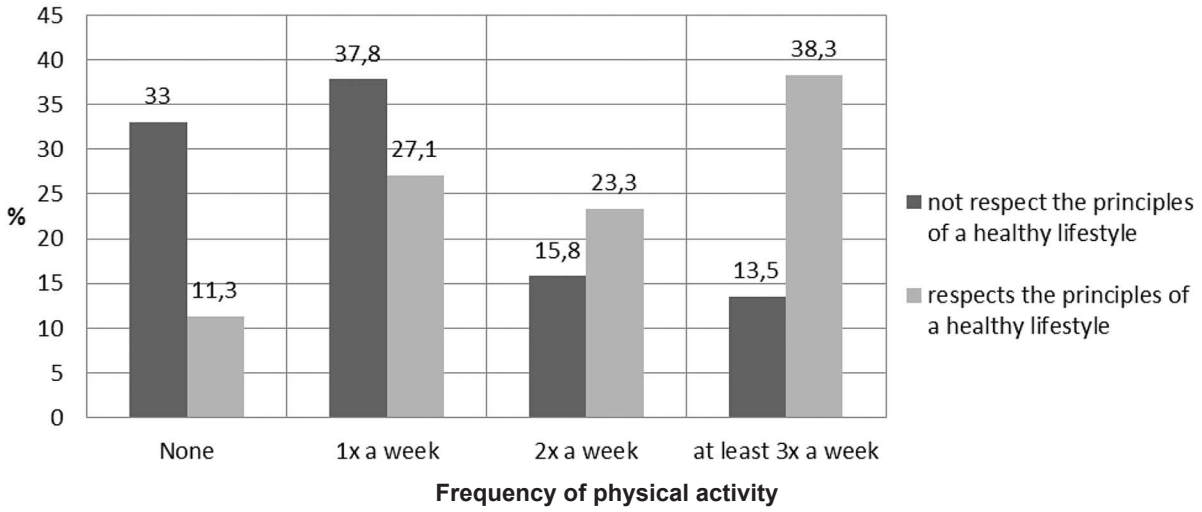

Fig. 1. *The relationship between subjective assessment of going by the principles of a healthy lifestyle and the physical activity of students*

vegetables at least several times a week or every day. similar number of students (67,9%; n=766) eat fresh fruit at the same frequency. Analysis demonstrates positive correlation between physical activity and consumption of fresh vegetables ($r_{sp=}$0,2; p<0,0001) and fruits ($r_{sp=}$0,2; p<0,0001) but this is not a strong relationship.

18,2% (n=206) of students consume sweets every day and 36,6% (n=413) several times a week. We noticed a weak tendency of consuming sweets by students who are not physically active than the students who practice sport minimum 3 times a week. There was observed a negative correlation between the activity and the consumption of sweets ($r_{sp=}$-0,1; p<0,0015).

The number of students, who drink coffee minimum twice a day is 29,6% (n =334) students drink coffee minimum twice a day but 43,7% (n=494) do not drink at all. 13,1% (n=148) of students did not drink alcohol and 43,2% (n=486) drink alcohol in small quantities, no more than once a week. However, as many as 28,4% (n=320) of respondents admit that sometimes loses control over drinking, and sometimes they get drunk. AGH students consume significantly more alcohol than students of other universities in Krakow. This can not be simply explained only by the fact that at the AGH was a predominated by men who more likely drink alcohol than women. Considering all the surveyed students, men really consume significantly (p<0,0001) more alcohol than women but for comparison, the proportion of men and women at UJ were similar to those at AGH, however, the consumption of alcohol at this university was significantly lower. At the AGH nearly one-quarter of students regularly gets drunk – several times a week (21,9% male and 24,3% female), while at other universities does not do this any woman and no more than one man. We found no relationship between the frequency of physical activity and the amount of drinking coffee or alcohol.

Only 10,8% (n=122) of surveyed students smoke cigarettes every day (regardless of the number of cigarettes). Students of ASP (38,7% smoke every day) more often smoke cigarettes than the other students (p<0,0001). There is no significant correlation between physical activity of students and smoking cigarettes by them (p=0,0875). Statistically significant positive correlations indicate that students who more often smoke cigarettes, significantly more often drink coffee ($r_{sp=}$ 0,31; p<0,0001), alcohol ($r_{sp=}$ 0,15; p<0,0001) and use drugs ($r_{sp=}$ 0,33; p<0,0001). Number of smokers significantly increased during study (p <0,0001) compared to the period before they start studying. There is also a very strong positive correlation between smoking before and during studies ($r_{sp=}$ 0,64; p<0,0001).

Alcohol consumption among the surveyed students did not increased much, but statistically significant (p<0,0001) during the study, comparing to the time before they start. As in the case of cigarettes, those who drank more alcohol before study in the cycle of studies still are drinking more ($r_{sp=}$ 0,59; p<0,0001).

Using drugs by young adults is one of the main problem nowadays. Our findings proved that it is also important issue among Polish students of whom 40% (n=450) declare that they had tried illegal drugs, this is especially a problem of ASP students (72,6% had tried drugs) which significantly more likely consume drugs (p<0,0001) than other students. Using drugs has no statistically significant effect on the physical activity of students (p=0,5413).

Obesity is not a big problem among students. Obesity occurred in 1,7% (n=18). Overweight occurred in 13,4% (n=146). Comparing students with overweight with those who have BMI<25kg/m^2 it was found that higher percentage of subjects with overweight eat significantly less fresh fruits (p<0,0001) and vegetables (p<0,0001).

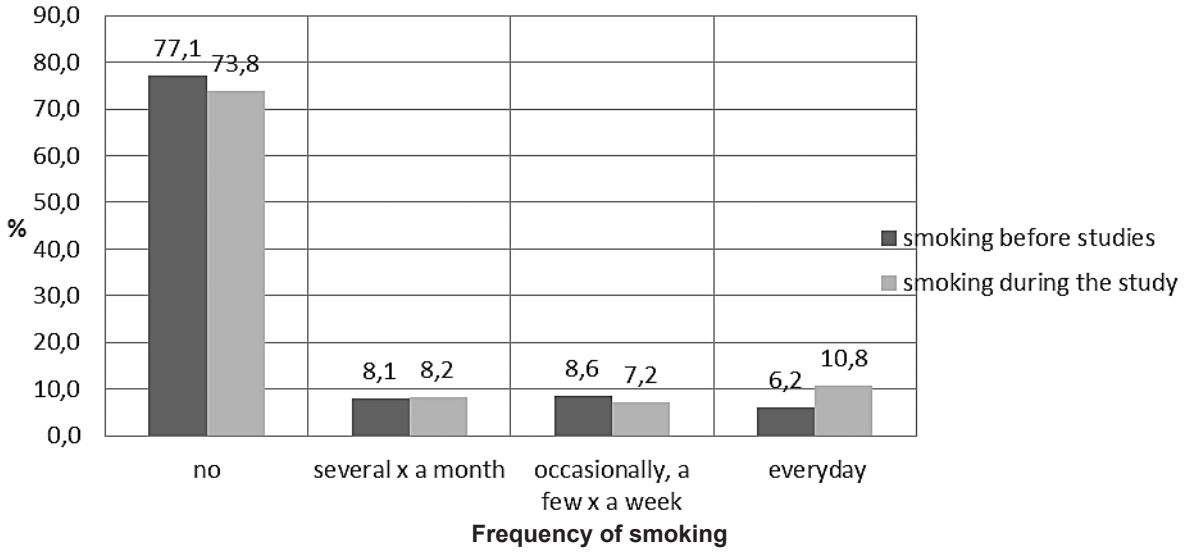

Fig. 2. *The relationship between smoking before and during the study*

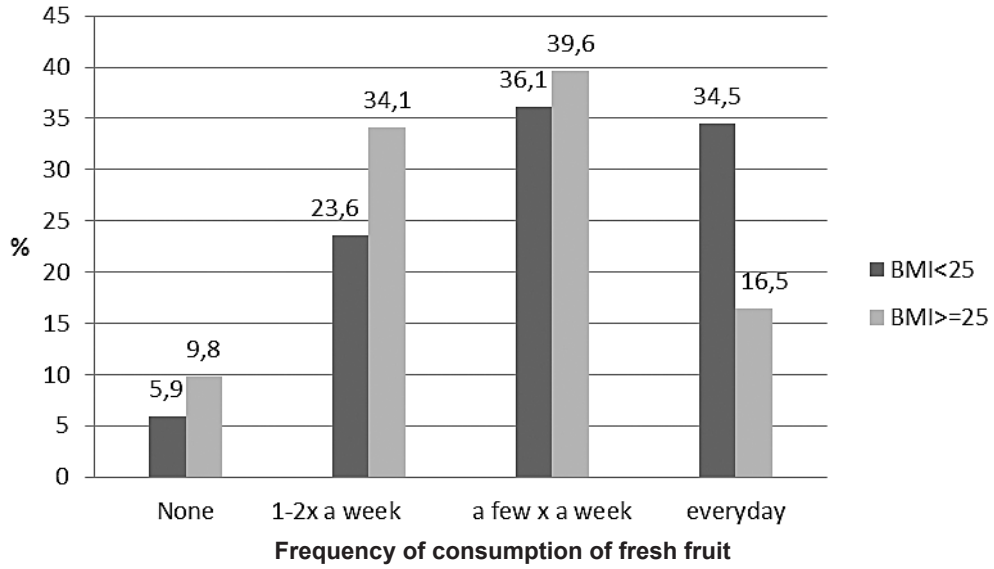

Fig. 3. *The relationship between the consumption of fresh fruit and BMI*

There were no significant differences between students with a BMI≥25 and students with a BMI<25 in the frequency of physical activity, consumption of sea fish, sweets, coffee, alcohol, cigarettes and drugs. 39,8% (n=446) of students never measured their blood pressure. Among those, who measured, the blood pressure is usually correct, only 7,5% (n=58) was abnormal.

BMI was the highest in students of the Academy of Physical Education and it is connected with the suspected larger mass of muscles in comparable with students who represented others study faculty. In opinion of the study's authors more suitable parameter to determine whether the body is fat or fit is the level of the fat tissue in the body but we didn't measure it.

Discussion

As proved so far, an unhealthy lifestyle among young adults is a serious problem [13]. In Europe, diseases of the cardiovascular system are the cause of 55 % of all deaths in women and 43 % of deaths in men [15]. There are non-modifiable and modifiable risk factors for atherosclerosis [16,17]. Non-modifiable risk factors include age, male gender and genetic factors. Modifiable risk factors for atherosclerosis include: sedentary lifestyle, limitation of physical activity, smoking, hypertension, overweight, obesity, disorders of carbohydrate and lipid metabolism, improper eating habits and stress. There are many modifiable risk factors in students habits, as our findings shows in this and previous study [18]. In particular, the use of improper diet, poverty of vegetables and fruits, sedentary lifestyles observed among students of most universities, with the exception of the Academy of Physical Education [18]. Some authors of the other researches have found that young women have more healthy habits and lifestyle than young men but our study doesn't confirm this [13,19,20]. Young adults often observe

and learn new habits through the process of social comparison that helps them adjust to peer norms and behaviours [21,22]. High school and universities have own program of education. These programs have impact on young adults, indirectly on their lifestyle. Promotion of healthy behavioral patterns among students, has significant meaning in the scale of whole country. It will decrease occurrence of cardiovascular diseases, mortality and morbidity connected with them. Social comparison tendencies may play an important role in adolescents habits. Adolescents and young adults tend to use peers as a basis of comparison rather than the general population [21,23]. On the basis of the study results we claim that social comparison tendencies may play an important role also in development of others habits. Lifestyle and pattern of healthy or unhealthy habits create various kinds of students cultures. As Bettina F. Piko highlights the importance of complex models in health education programs on adolescent smoking. We proved in our study, that education programs have significant meaning also on other habits. Our findings indicated that the students lifestyle and habits depend on university. Results of our study proved that students who are physically active, have healthy habits e.g. usually don't use tobacco or drink alcohol. A physically active lifestyle, good nutrition, absence of tobacco and alcohol may delay or prevent the onset of cardiovascular disease [13].

In the European Union (EU) two thirds of the adult population (aged 15 years and over) did not reach recommended levels of activity in 2002 [24]. One in five people takes little or no physical activity, with higher levels of inactivity in the eastern part of the Region, according the World Health Organization, European Region as a whole [25]. In according to the data, Polish student are rather active (especially from the Academy of Physical Education).

According to Oyhenart et al., economic and educational factors can cause the differences in nutritional habits among adolescents [26]. Amarashinghe et al. claimed that socioeconomic conditions and the surrounding economic environment influence on people's health and quality of life [27]. To summarize, young people make numerous mistakes in their diet and have unhealthy habits under the influence of environmental pressure and educational factors, as claimed Breat et al [28]. Authors of the study noticed that students of Faculty of Medicine unfortunately don't have proper habits and provided sedentary lifestyle but this fact is connected with the educational programs: no mandatory physical education course and not enough free time for this activity. We agree with J. Suliburska et al., that mass media (especially the Internet) and development of communication can lead to improvement of habits in young people[13]. We emphasize the role of cultivation of sport by mass media and enrich in lectures about healthy lifestyle's rules in educational program at each university.

Conclusions

Our findings point to the importance of both educational programs of universities and academic environment that influences young adults habits. Sport is the strongest factor of healthy lifestyle. Physical activity is connected with occurrence of other healthy habits. Students who are physically active have more healthy habits and lifestyle (don't like smoking, prefer healthy diet).

Key-points

This study explores interrelationships among young adults physical activity and other habits.

There are many modifiable risk factors of atherosclerosis in students, e.g. smoking, inappropriate nutritional behaviours, overweight and sedentary lifestyle.

Educational program of the university and academic environment have significant impact on physical activity of students.

Results of the study emphasize the significance of complex models in health education programs on young adults habits and promotion of sport and physical activity – one of the most important healthy habit connected with occurrence of other proper habits.

Conflicts of interest

None declared.

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